

What is claimed is:

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1. A method of delivering and releasing active material comprising the steps of:
- a) entraining a plurality of active material droplets within a hydrophilic matrix inside a hydrogel microbead;
  - b) suspending a plurality of said microbeads in a solution;
  - c) delivering said solution comprising said microbeads onto a substrate; and
  - d) allowing said microbeads to dehydrate.
2. The method according to claim 1 further comprising the steps of:
- e) exposing said microbeads to humidity; and
  - f) allowing said microbeads to rehydrate.
3. The method according to claim 1 wherein said active material is a pheromone and said hydrophilic matrix is an alginate.
4. The method according to claim 2 wherein said step of exposing said microbeads to humidity is performed by wetting the surfaces of said microbeads with a solution.
5. The method according to claim 2 wherein said step of exposing said microbeads to humidity is performed by adding moisture to the ambient air.
6. The method according to claim 2 wherein said steps d) thru f) are repeated sequentially.
7. The method according to claim 1 wherein said hydrophilic matrix is made from a polysaccharide.

8. The method according to claim 7 wherein said polysaccharide is selected from the group consisting of alginate, chitosans, carrageenan, gum and agar.
- 5 9. The method according to claim 1 wherein said hydrophilic matrix is a material selected from the group consisting of polyvinyl alcohol, poly(N-isopropylacrylamide), acrylamides, acrylates, methacrylates, and combinations thereof.
- 10 10. The method according to claim 1 wherein said active material is selected from the group consisting of pheromone, mercaptan-containing compound, herbicide, pesticide, and pharmaceutical material.
- 15 11. The method according to claim 1 wherein said microbead has an average diameter between about 1  $\mu\text{m}$  to about 1000  $\mu\text{m}$ .
12. The method according to claim 1 wherein said microbead has an average diameter between about 1  $\mu\text{m}$  to about 500  $\mu\text{m}$ .
- 20 13. The method according to claim 1 wherein said microbead further comprises a surfactant.
14. The method according to claim 1 wherein said microbead further comprises an oil absorbent.
- 25 15. The method according to claim 1 wherein said microbeads further comprise an additive selected from the group consisting of preservatives, humectants, stabilizers, UV protectants, and combinations thereof.
- 30 16. The method of claim 1 wherein said active material is present in an amount between about 0.1 wt % to about 60 wt% of the total weight of said microbead.

17. The method of claim 1 wherein said active material is present in an amount between about 0.2 wt% to about 40 wt % of the total weight of said microbead.

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18. The method of claim 1 wherein said active material is present in an amount between about 0.3 wt% to about 20 wt % of the total weight of said microbead.

10 19. A sprayable composition comprising microbeads suspended in a solution, wherein said microbeads comprise a hydrophilic matrix having a plurality of active material droplets entrained therein.

15 20. The composition of claim 19 wherein said hydrophilic matrix is made from a polysaccharide.

21. The composition of claim 19 wherein said polysaccharide is selected from the group consisting of alginate, chitosans, carrageenan, gum and agar.

20 22. The composition of claim 19 wherein said hydrophilic matrix is a material selected from the group consisting of poly(N-isopropylacrylamide), acrylamides, acrylates, methacrylates, and combinations thereof.

25 23. The composition of claim 19 wherein said active material is selected from the group consisting of pheromone, mercaptan-containing compound, herbicide, pesticide, and pharmaceutical material.

24. The composition of claim 19 wherein said microbead has an average diameter between about 1  $\mu\text{m}$  to about 1000  $\mu\text{m}$ .

30 25. The composition of claim 19 wherein said microbead has an average diameter between about 1  $\mu\text{m}$  to about 500  $\mu\text{m}$ .

26. The composition of claim 19 wherein said active material is present in an amount between about 0.1 wt % to about 60 wt% of the total weight of said microbead.
27. The composition of claim 19 wherein said active material is present in an amount between about 0.2 wt% to about 40 wt% of the total weight of said microbead.
28. The composition of claim 19 wherein said active material is present in an amount between about 0.3 wt% to about 20 wt % of the total weight of said microbead.
29. The composition of claim 19 further comprising adhesive material selected from the group consisting of hollow tacky adhesive microspheres, solid tacky adhesive microspheres, latex, and combinations thereof.
30. The composition of claim 19 wherein said microbeads further comprise a surfactant.
31. The composition of claim 19 wherein said microbeads further comprise an oil absorbent.
32. The composition of claim 19 wherein said microbeads further comprise an additive selected from the group consisting of preservatives, humectants, stabilizers, UV protectants, and combinations thereof.